SINDH BOARD NOTES

CHEMISTRY

10 TH CLASS

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CHAPTER 9

CHEMICAL EQUILIBRIUM

MULTIPLE CHOICE QUESTIONS

1. **In chemical reactions the substances that combine are called:**
(a) Products (b) Reversible reaction
(c) Reactants (d) Irreversible reaction
2. **Name the reactants in this equation.** $2H_{2(g)} + O_{2(g)} \xrightarrow[heat]{pt} 2H_2O_{(l)}$
(a) H_2O (b) H_2 and O_2 (c) O_2 (d) None of these
3. **The reaction in which the products do not recombine to from reactants is known as:**
(a) Reversible reactions (b) Reactants
(c) Products (d) Irreversible reactions
4. **The reactions in which the products recombine to form reactants are called:**
(a) Reactants (b) Reversible reactions
(c) Irreversible reaction (d) Both and b
5. **Irreversible reaction goes on:**
(a) Never complete (c) completion (b) Both a and c (d) None of these
6. **Reversible reaction:**
(a) can complete (b) never complete (c) Both a and b (d) None of these
7. **The colour of hydrogen Iodide (HI) is:**
(a) Blue (b) Grey (c) Purple (d) Colourless
8. **The colour of iodine (I) is:**
(a) Purple (b) Green (c) Yellow (d) None of these
9. **At equilibrium the rate of forward and reverse reaction becomes.**
(a) Greater (b) Normal (c) Equal (d) Lesser
10. **Dynamic means reaction i:**
(a) Stops (b) Still continuing (c) Opposite direction (d) Both a and b
11. **When reaction ceases to proceed it is called:**
(a) Dynamic equilibrium (b) Static equilibrium
(c) chemical equilibrium (d) none of these
12. **Reaction in which reactants react to form products called:**
(a) forward reactions (b) reverse reactions (c) reversible reaction (d) backward reactions
13. **At initial stage the rate of forward reaction is.**
(a) low (b) very low (c) very fast (d) all of these
14. **There are _____ possibilities at equilibrium state.**
(a) three (b) five (c) four (d) two
15. **Reverse reaction take place from:**
(a) left to right (b) right to left (c) both a and b (d) none of these
16. **Reverse reactions _________ gradually.**
(a) speeds up (b) negligible (c) slows down (d) none of above
17. **Forward reaction takes place from:**
(a) left to right (b) right to left (c) both a and b (d) all of these

18. **The characteristics of reversible reaction are the following except.**
(a) products never recombine to from reactant (b) they never complete
(c) they proceed in both ways (d) they have double arrow between them

19. **In the lime kiln the reaction $CaCO_{3(s)} \longrightarrow CaO_s + CO_{2(g)}$ goes to completion because, of**
(a) High temperature (b) CO_2 escapes continuously
(c) CaO is not dissociated (d) CaO is more stable that $CaCO_3$.

20. **For the reaction $2A_g + B_g \rightleftharpoons 3C_g$ the expression for the equilibrium constant is**
(a) $\frac{[2A][B]}{[3C]}$ (b) $\frac{[A]^2[B]}{[C]^3}$ (c) $\frac{[3C]}{[2A][B]}$ (d) $\frac{[C]^3}{[A]^2[B]}$

21. **Which statement is not correct about active mass?**
(a) Rate of reaction is directly proportional to active mass.
(b) The opposing reactions (forward and reverse) stops.
(c)Active mass means total mass of substances.
(d) None of these

22. **When the magnitude of K_c is very large it indicates.**
(a) Reaction mixture consists of almost all products
(b) Reaction mixture has almost all reactants.
(c) Reaction has gone to completion.
(d) All of these

23. **When the magnitude of Kc is very small it indicates.**
(a) equilibrium is never establish
(b) all reactants will be converted to products
(c) reaction will go to complete
(d) the amounts of products is negligible

24. **Reaction will have comparable amounts of reactants and products at equilibrium state have.**
(a) very small Kc value (b) moderate Kc value
(c) very large Kc value (d) none of these

25. **In an irreversible reaction dynamic equilibrium.**
(a) never establishes (b) establish readily
(c) establish after the completion of reaction. (d) establish before the completion of reaction.

26. **For a reaction between PCl_3 and Cl_2 to form PCl_5 the units of Kc are:**
(a) mol dm^{-3} (b) mol^{-1} dm^{-3} (c) mol^{-1} dm^3 (d) mol dm^3

27. **An equilibrium is achievable only in**
(a) open system (b) close system (c) both a and b (d) all of these

28. **At equilibrium state the physical properties like density, colour etc:**
(a) remains same (b) changes (c) all of these (d) none of these

29. **Name the scientist who presented law of mass action.**
(a) Guldberg (b) Bronsted (c) Lowry (d) Lewis

30. **Reversible reactions takes place in:**
(a) single direction (b) both directions (c) both a & b (d) all of these

31. **Numerical value of K_c predicts :**
(a) direction of reaction (b) extent of reaction
(c) both a & b (d) all of these

32. **When H_2 and O_2 combine they form**
(a) H_2O (b) H and O (c) HO_2 (d) none

33. **When H_2 and I_2 combine they form**
(a) H_2O (b) HI (c) I_2 (d) H_2 and I_2

34. **The ratio of product concentration of products raised to power of co-efficient to the products of reactant raised to the power co-efficient is known as.**
(a) Kc (b) Qc (c) forward reaction (d) reverse reaction

35. **In direction of a reaction, reaction proceeds forward then:**
(a) Qc < Kc (b) Qc > Kc (c) Qc = Kc (d) None of them

36. **In direction of a reaction, reaction proceeds reverse then:**
(a) Qc < Kc (b) Qc > Kc (c) Qc = Kc (d) all of these

37. **In direction of a reaction, reaction is at equilibrium then:**
(a) Qc < Kc (b) Qc > Kc (c) Qc = Kc (d) Both a & b

38. **In extent of reaction, the reaction goes to completion have:**
(a) very large Kc value (b) very small Kc value
(c) moderate Kc value (d) None of them

39. **In extent of reaction, the reaction never goes to completion have:**
(a) very large Kc value (b) very small Kc value
(c) moderate Kc value (d) Qc = Kc

40. **Reaction quotient is expressed as:**
(a) K_c (b) Q_c (c) K_r (d) K_f

41. **There are _________ possibilities of predicting extent of reaction**
(a) 1 (b) 2 (c) 3 (d) 4

42. **There are _________ major components of atmosphere:**
(a) 1 (b) 2 (c) 3 (d) 4

43. **The two major components of atmosphere are:**
(a) nitrogen and hydrogen gasses (b) oxygen and hydrogen gasses
(c) nitrogen and carbon dioxide gasses (d) nitrogen and oxygen gasses

44. **Nitrogen and oxygen constituents' _____ of the atmosphere:**
(a) 99% (b) 98% (c) 92% (d) 97%

45. **Gases are being used to manufacture:**
(a) products (b) chemicals (c) reactants (d) Both b & c

46. **Nitrogen is used to prepare:**
(a) carbon dioxide (b) ammonia (c) hydrogen (c) None of these

47. **Oxygen is used to prepare:**
(a) ammonia (b) nitrogen gas (c) oxygen (d) sulphur dioxide

48. **By knowing the value of equilibrium constant __________ can be predicted:**
(a) direction of reaction (b) extent of reaction (c) both a & b (d) all of these

ختم نبوت ﷺ زندہ باد

عظمت صحابہ زندہ باد

السلام علیکم ورحمۃ اللہ وبرکاتہ:

معزز ممبران: آپ کا وٹس ایپ گروپ ایڈمن "**اردو بکس**" آپ سے مخاطب ہے۔

آپ تمام ممبران سے گزارش ہے کہ:

- گروپ میں صرف PDF کتب پوسٹ کی جاتی ہیں لہذا کتب کے متعلق اپنے کمنٹس / ریویوز ضرور دیں۔ گروپ میں بغیر ایڈمن کی اجازت کے کسی بھی قسم کی (اسلامی و غیر اسلامی، اخلاقی، تحریری) پوسٹ کرنا سختی سے منع ہے۔
- گروپ میں معزز، پڑھے لکھے، سلجھے ہوئے ممبرز موجود ہیں اخلاقیات کی پابندی کریں اور گروپ رولز کو فالو کریں بصورت دیگر معزز ممبرز کی بہتری کی خاطر ریموو کر دیا جائے گا۔
- کوئی بھی ممبر کسی بھی ممبر کو انباکس میں میسیج، مس کال، کال نہیں کرے گا۔ رپورٹ پر فوری ریموو کر کے کاروائی عمل میں لائے جائے گی۔
- ہمارے کسی بھی گروپ میں سیاسی و فرقہ واریت کی بحث کی قطعاً کوئی گنجائش نہیں ہے۔
- اگر کسی کو بھی گروپ کے متعلق کسی قسم کی شکایت یا تجویز کی صورت میں ایڈمن سے رابطہ کیجئے۔
- سب سے اہم بات:

گروپ میں کسی بھی قادیانی، مرزائی، احمدی، گستاخِ رسول، گستاخِ امہات المؤمنین، گستاخِ صحابہ و خلفائے راشدین حضرت ابو بکر صدیق، حضرت عمر فاروق، حضرت عثمان غنی، حضرت علی المرتضیٰ، حضرت حسنین کریمین رضوان اللہ تعالیٰ اجمعین، گستاخِ اہلبیت یا ایسے غیر مسلم جو اسلام اور پاکستان کے خلاف پراپیگنڈا میں مصروف ہیں یا ان کے روحانی و ذہنی سپورٹرز کے لئے کوئی گنجائش نہیں ہے لہذا ایسے اشخاص بالکل بھی گروپ جوائن کرنے کی زحمت نہ کریں۔ معلوم ہونے پر فوراً ریموو کر دیا جائے گا۔

- تمام کتب انٹرنیٹ سے تلاش / ڈاؤنلوڈ کر کے **فری آف کاسٹ** وٹس ایپ گروپ میں شیئر کی جاتی ہیں۔ جو کتاب نہیں ملتی اس کے لئے معذرت کر لی جاتی ہے۔ جس میں محنت بھی صَرف ہوتی ہے لیکن ہمیں آپ سے صرف دعاؤں کی درخواست ہے۔
- عمران سیریز کے شوقین کیلئے علیحدہ سے عمران سیریز گروپ موجود ہے۔
- **لیڈیز کے لئے الگ گروپ کی سہولت موجود ہے جس کے لئے ویریفکیشن ضروری ہے۔**
- اردو کتب / عمران سیریز یا سٹڈی گروپ میں ایڈ ہونے کے لئے ایڈمن سے وٹس ایپ پر بذریعہ میسیج رابطہ کریں اور جواب کا انتظار فرمائیں۔ برائے مہربانی اخلاقیات کا خیال رکھتے ہوئے موبائل پر کال یا ایم ایس کرنے کی کوشش ہرگز نہ کریں۔ ورنہ گروپس سے تو ریموو کیا ہی جائے گا بلاک بھی کیا جائے گا۔

نوٹ: ہمارے کسی گروپ کی کوئی فیس نہیں ہے۔ سب فی سبیل اللہ ہے

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اللہ تبارک تعالیٰ ہم سب کا حامی و ناصر ہو

49. **The characteristics of inversible reaction are the following exept**
(a) they never complete
(b) products never recombines to form reactions
(c) they have a double arrow between reactants and products
(d) none of these

50. **Many environmental systems depend for their:**
(a) existence on their delicate equilibrium phenomenona
(b) existence on the water
(c) both of these
(d) none of these

51. **Ammonia is used to manufacture :**
(a) sulphuric acid (b) hydrogen
(c) nitrogenous fertilizers (d) none of these

52. **Sulphur dioxide is used to manufacture:**
(a) sulphuric dioxide (b) ammonia
(c) sulphuric acid (d) nitrogenous fertilizers

53. **Which is the king of chemicals:**
(a) sulphuric dioxide (b) ammonia (c) nitrogen (d) sulphuric acid

54. **Nitrogen and oxygen gasses are being used to manufacture chemicals since the advent of __________ century:**
(a) 18 (b) 20 (c) 19 (d) 21

55. **The reaction in which all the reactants have been converted into products are known as**
(a) incomplete reactions (b) complete reactions
(c) continuous reactions (d) None of them

56. **The lives of aquatic animals and plants are indirectly related to concentration of _______ dissolved in water:**
(a) carbon dioxide (b) oxygen (c) both a & b (d) none of them

57. **Irreversible reaction represented by a ________ between a reactant and a product:**
(a) single arrow (b) K_c (c) double arrow (d) all of these

58. **Irreversible reaction consists of:**
(a) forward reactions (b) reverse reactions
(c) forward & reverse reactions (d) none of them

59. **When CaO reacts with CO_2 they produce:**
(a) $CaCO_3$ (b) $CaCO_2$ (c) Both a & b (d) all of these

60. **In the beginning reverse reactions is**
(a) fast (b) stops (c) slow (d) none of above

61. Rate of forward reactions takes place at the rate of reverse reaction, the composition of the reaction mixture remains constant is called

(a) satatic equilibrium (b) dynamic equilibrium
(c) chemical equilibrium state (d) none of these

62. Point out the co efficient in the following hypothetical reactions

$2A+3D \longrightarrow 4C+8D$

(a) 2,3,4d (b)2,3,4,3 (c) A,b,c,d (d) 2,3,4,8

63. An active mass is considered as the molar concerations in units of

(a) mol dm^{-3} (b) mol^{-3} dm (c) mol^{-2} dm (d) mol^{-2} dm

64. There are ________characteristics of dynamic equilibrium

(a) one (b) two (c) three (d) five

65. The oxidation of cabon monoxides goes to completion at

(a) 2000K (b) 1000K (c) 100K (d) 200K

66. The reaction quotient is useful because it predicts the direction of reaction by comparing the value of

(a) Qc (b) Qc with Kc (c) k_c (d) none of these

67. For the reactions $H_2 + I_2 \longrightarrow 2HI$. The reactions quotients for this reactions is

(a) 8.0 (b) 2.0 (c) 9.0 (d) None of these

68. As the numeric value of Qc (8.0) is less than K_C (57.0) the reaction is not

(a) in forward direction (b) at equilibrium (c) in reverse direction (d) all of these

ANSWER KEY

1	c	14	d	27	b	40	b	53	d	66	b
2	b	15	b	28	a	41	c	54	b	67	a
3	d	16	a	29	a	42	b	55	b	68	b
4	b	17	[illegible]	30	b	43	d	56	b		
5	c	18	a	31	b	44	a	57	a		
6	b	19	b	32	a	45	b	58	a		
7	d	20	d	33	b	46	b	59	a		
8	a	21	c	34	a	47	d	60	c		
9	c	22	a	35	a	48	c	61	c		
10	b	23	d	36	b	49	c	62	d		
11	b	24	b	37	c	50	a	63	a		
12	a	25	a	38	a	51	c	64	d		
13	c	26	c	39	b	52	c	65	b		

CHAPTER 10

ACIDS, BASES AND SALTS

MULTIPLE CHOICE QUESTIONS

1. **Nitric acid was prepared by**
(a) Bu Ali Sina (b) Jabir Bin Hayan (c) Lavioser (d) Humphrey

2. **The first acid known to man was:**
(a) hydrochloric acid (b) sulphuric acid (c) nitric acid (d) acetic acid

3. **The word acid is derived from**
(a) acidic (b) acidus (c) acetic (d) acetate

4. **Humphrey Davy proved the presence of _____ as the main constituents of all acids**
(a) nitrogen (b) oxygen (c) hydrogen (d) chlorine

5. **Formula of phosphoric acid is:**
(a) H_2PO_3 (b) H_4PO_3 (c) HPO_4 (d) H_3PO_4

6. **$Al(OH)_3$ is:**
(a) acid (b) base (c) salt (d) non-metallic oxide

7. **Which is amphoteric:**
(a) HCl (b) NH_3 (c) NaOH (d) H_2O

8. **The product of any Lewis acid base reaction is a single specie:**
(a) salt (b) adduct
(c) salt $+H_2O$ (d) conjugate acid-base pair

9. **In a resaction between ammonia & borontrifloride , BF_3 is**
(a) acid (b) base (c) conjugate base (d) adduct

10. **These can act as Lewis acids**
(a) anions (b) radicals (c) cations (d) molecule

11. **Bronsted lowery acid**
(a) gives H^+ (b) electron pair acceptor
(c) donates OH^- (d) donates H^+

12. **All bronsted bases are**
(a) arhenius bases (b) Lewis acids
(c) Lewis base (d) bronsted acids

13. **The final product of arhenius concept is**
(a) salt $+H_2O$ (b) adduct
(c) conjugate acid base pair (d) salt only

14. **Neutralization is reaction of**
(a) acid with metals (b) acids with sulphides
(c) bases with acids (d) none of them

15. **Acid used for food preservation**
(a) nitric acid (b) benzoic acid (c) acetic acid (d) Both b and c

16. **Maleic acid is found from**
(a) apples (b) grapes (c) sour milk (d) fats
17. **Acid reacts with metal sulphides to liberate**
(a) hydrogen gas (b) carbon dioxide (c) ammonia gas (d) hydrogen sulphide gas
18. **It is used to treat bee's sting**
(a) $Mg(OH)_2$ (b) $Ca(OH)_2$ (c) NaOH (d) KOH
19. **It is found in stings of bee's and ants:**
(a) lactic acid (b) Maleic acid (c) butyric acid (d) formic acid
20. **It is used to cure sting of wasps:**
(a) acetic acid (b) benzoic acid (c) nitric acid (d) sulphuric acid
21. **Bases react with acid to form:**
(a) salt only (b) salt & water (c) water only (d) None of them
22. **Stomach acidity is also called :**
(a) acidity (b) heart burning (c) hyperacidity (d) hypoacidity
23. **When acids react with carbonates and bicarbonates, which evolves out:**
(a) H_2S (b) CO_3 (c) CO_2 (d) CO
24. **It is used in etching designs on copper plates:**
(a) sulphuric acid (b) acetic acid (c) hydrochloric acid (d) nitric acid
25. **These can act as lewis bases**
(a) cations (b) anions (c) cations & anions (d) radicals
26. **Uric acid is present in**
(a) fats (b) citrus fruits (c) apples (d) urine
27. **In etching process, the glass or mirror is dipped into:**
(a) hydrochloric acid (b) sulphuric acid (c) nitric acid (d) hydrofluoric acid
28. **Concentration of _________ in pure water is the basis for pH scale**
(a) hydrogen ion (b) sodium ion (c) potassium ion (d) hydroxide ion
29. **Water is:**
(a) weak electrolyte (b) strong electrolyte (c) non-electrolyte (d) None of them
30. **Water ionizes slightly into ions is a process called:**
(a) neutralization (b) auto ionization (c) self ionization (d) both b & c
31. **"K_w" is known as:**
(a) equilibrium constant (b) ionic product constant
(c) specific rate constant (d) all of them
32. **The negative logarithm of molar concentration of hydrogen ions is:**
(a) pOH (b) p (c) pH (d) None of them
33. **The range of pH scale is from:**
(a) 10-14 (b) 1-14 (c) 0-14 (d) 14-0
34. **The sum of pH scale and pOH is always :**
(a) 14 at 26°C (b) 14 at 25 °C (c) 13 at 25 °C (d) 7 at 25 °C

35. **A solution of a compound of pH 7 or pOH 7 is considered a:**
(a) basic solution (b) neutral solution (c) acidic solution (d) None of them
36. **Solution of pH less than ________ are acidic.**
(a) 7 (b) 14 (c) 6 (d) 9
37. **Solution of pH more than 7 are:**
(a) acidic (b) neutral (c) basic (d) All of them
38. **pH =__________:**
(a) $-\log[OH^-]$ (b) $-\log[H^+]$ (c) $\log[H^+]$ (d) Both b & c
39. **A solution of pH = 1 has _________ times higher concentration of H^+ than a solution of pH = 2:**
(a) 14 times (b) 100 times (c) 10 times (d) None of them
40. **Low pH value means:**
(a) strong acid (b) weak acid (c) strong basic (d) All of them
41. **pH of a neutral solution is always:**
(a) 14 (b) 0 (c) 7 (d) None of them
42. **High value of pH means:**
(a) strong acid (b) strong base (c) Both a & b (d) neutral
43. **Indicators are :**
(a) inorganic compounds (b) hydrocarbons
(c) organic compounds (d) None of them
44. **Indicators have _______ colour in acidic or basic solution:**
(a) same (b) different (c) light (d) normal
45. **It is a common indicator.**
(a) litmus (b) pH meter (c) pH scale (d) both a & b
46. **Litmus is __________ in acidic solution:**
(a) blue (b) normal (c) red (d) orange
47. **Litmus is ________ in basic solution:**
(a) red (b) blue (c) yellow (d) orange
48. **Phenolphthalein is _________ in acidic solution:**
(a) red (b) blue (c) yellow (d) colorless
49. **Methyl orange is _____________ in alkaline solution :**
(a) red (b) blue (c) yellow (d) orange
50. **At which pH methyl orange change color:**
(a) 7 (b) 14 (c) 9 (d) 4
51. **At which pH phenolphthalein change color:**
(a) 7 (b) 4 (c) 9 (d) 0
52. **pH meter consists of:**
(a) pH electrode (b) positive electrode (c) negative electrode (d) None of them
53. **It is much more reliable and accurate method of measuring pH:**
(a) universal indicator (b) pH meter (c) pH scale (d) litmus

54. **A solution HCl is 0.001 M. what is pH value?**
(a) 3 (b) 12 (c) 2 (d) 14

55. **What is pH value of 0.01 M solution of KOH?**
(a) 14 (b) 13 (c) 11 (d) 3

56. **What is pH value of 0.01 M sulphuric acid ?**
(a) 7.1 (b) 1.7 (c) 1.0 (d) 0.3

57. **Ionic product constant depends on :**
(a) temperature (b) concentration (c) both (d) None

58. **Salts are:**
(a) organic compounds (b) inorganic compounds
(c) ionic compounds (d) None of them

59. **A cation is derived from:**
(a) acid (b) base (c) molecule (d) compound

60. **Metallic oxides are:**
(a) bases (b) acids (c) salts (d) organic compounds

61. **A anion is derived from:**
(a) acid (b) base (c) molecule (d) all of them

62. **When Na reacts with HCl the salt produced is:**
(a) NaCl (b) NaOH (c) H_2O (d) NH_3

63. **Sodium carbonate, Sodium sulphate and sodium silicate are used to manufacture:**
(a) paper (b) detergents (c) glass (d) cleaning agents

64. **Heat resistance glass is:**
(a) simple glass (b) Pyrex (c) both a and b (d) None of them

65. **Salts are found in:**
(a) crystalline form (b) amorphic form (c) Both a & b (d) None

66. **Salt have:**
(a) high M.P and low B.P (b) high M.P and B.P
(c) low M.P and low B.P (d) low M.P and high B.P

67. Copper sulphate has water of crystallization:
(a) 5 (b) 2 (c) 6 (d) 24

68. **Calcium sulphide has water of crystallization:**
(a) 5 (b) 2 (c) 6 (d) 24

69. **Salts may be:**
(a) water soluble (b) water insoluble (c) both (d) none

70. **____________ salts are often prepared in water:**
(a) soluble (b) insoluble (c) both (d) none

71. **Reaction of acid and a metal is called ____________ reaction:**
(a) partial displacement (b) direct displacement
(c) incomplete displacement (d) all of these

72. **Mostly insoluble metallic oxides react with __________ to form salt and water:**
(a) dilute acids (b) concentrated acids (c) dilute bases (d) None of them

73. **In preparation of insoluble salts, __________ are mixed:**
(a) insoluble salts (b) soluble salts (c) insoluble and soluble salts (d) None

74. **There are _______ types of salts:**
(a) 4 (b) 6 (c) 5 (d) 7

75. **$HCl + KOH \longrightarrow KCl + H_2O$ is an example of:**
(a) neutral salt (b) acidic salt (c) basic salt (d) complex salt

76. **$H_3PO_4 + NaOH \longrightarrow NaH_2PO_4 + H_2O$ is an example of :**
(a) acidic salt (b) basic salt (c) double salt (d) normal salt

77. **Acidic salts turn _________ litmus into red:**
(a) blue (b) orange (c) yellow (d) green

78. **$FeSO_4.(NH_4)_2 SO_4.6H_2O$ is:**
(a) mohr's salt (b) potash alum (c) ferric alum (d) None

79. **Double salts are formed by two:**
(a) acidic salts (b) neutral salts (c) basic salts (d) mixed salts

80. **The formula of bleaching powder is:**
(a) CaCl (b) Ca(OCl)Cl (c) $CaCl_2$ (d) Ca(OCl)

81. **Washing soda has water of crystallization:**
(a) 24 (b) 6 (c) 5 (d) 10

ANSWER KEY

1	b	14	c	27	d	40	a	53	b	66	a	79	b
2	d	15	d	28	a	41	c	54	c	67	a	80	b
3	b	16	a	29	a	42	b	55	c	68	b	81	d
4	c	17	d	30	d	43	c	56	b	69	a	82	b
5	d	18	a	31	b	44	b	57	c	70	c	83	b
6	b	19	d	32	c	45	a	58	c	71	b	84	d
7	d	20	a	33	c	46	c	59	b	72	a		
8	b	21	b	34	b	47	b	60	a	73	b		
9	a	22	c	35	b	48	d	61	a	74	b		
10	c	23	c	36	a	49	c	62	a	75	a		
11	d	24	d	37	c	50	d	63	b	76	a		
12	c	25	b	38	b	51	c	64	b	77	a		
13	a	26	d	39	c	52	a	65	a	78	a		

CHAPTER 11

ORGANIC CHEMISTRY

MULTIPLE CHOICE QUESTIONS

1. **Amount of carbon content in lignite is:**
(a) 70% (b) 90% (c) 80% (d) 60%

2. **The removal of terminal hydrogen from the straight chain of propane is called:**
(a) n-propyl (b) propane (c) is opropyl (d) propene

3. **The molecular formula of pentane is:**
(a) CH_4 (b)C_3H_3 (c) C_5H_{12} (d) C_4H_{10}

4. **Which of the following are derived From alkanes :**
(a) Alkyle radical (b) Alkane radical (c) Alkene radical (d) Alkyne radical

5. **Vitamins are found in:**
(a) apple (b) pulses (c) citrus fruits (d) both "a" and "c"

6. **Name the gas which is not found in coal gas:**
(a) Hydrogen (b) Nitrogen (c) Methane (d) Carbon monoxide

7. **Functional group – OH is found in:**
(a) Alcoholic group (b) Carboxylic group (c) Ether linkage (d) Ester Linkage

8. **Perfumes contain:**
(a) Sunflower oil (b) Rose oil (c) Soya been oil (d) Palm oil

9. **Functional group C-O-C is found in:**
(a) Ester Linkage (b) Aldehydic group (c) Ether Linkage (d) Ketonic group

10. **CH_3–O–CH_3 is called:**
(a) Dimethyl ether (b) Diethyl ether (c) Ethyl Methyl ether (d) Propyl ether

11. **The Characteristic of carboxylic acid are due to the presence of _______ group in them:**
(a) $-\overset{\overset{O}{||}}{C}-$[redacted] (b) –COOH (c) –OH (d) C–O–C

12. **The branch of Chemistry which deals with hydrocarbons and their derivatives are called:**
(a) Inorganic Chemistry (b) Analytical Chemistry
(c) Organic Chemistry (d) Bio chemistry

13. **Alkanes are also called:**
(a) Olefin (b) Ace tylenes (c) Paraffin (d) Carboxylic acid

14. **How many carbons are present in Heptanes?**
(a) 5 (b) 6 (c) 8 (d) 7

15. **The chemical formula of octane is:**
(a) C_5H_{12} (b) C_3H_8 (c) C_2H_6 (d) C_8H_{18}

16. **Alkyle Radical is represented as:**
(a) R (b) D (c) A (d) C

17. **Coal consists of _______ types:**
(a) 1 (b) 3 (c) 2 (d) 4

18. **Organic compounds have:**
(a) Ionic Bond (b) Covalent Bond
(c) Electrocovelent Bound (d) Coordinate Bound

19. **Dead plants produce all of these products except:**
(a) coal (b) gas (c) petroleum (d) acids

20. **Which one contains double bond?**
(a) Alkene (b) Alkyne (c) Alkane (d) Alkyle

21. **Which one contains triple bond?**
(a) Alkyne (b) Alkyle (c) Alkane (d) Alkyne

22. **Functional group containing carbon, hydrogen and halogens are:**
(a) Alkyl Halides (b) Alkene (c) Amines (d) Halides

23. **Functional group containing – NH_2 are called:**
(a) Thiophene (b) Alkyne (c) Amines (d) Alkane

24. **The vital force theory suffered rejection in:**
(a) 1892 (b) 1882 (c) 1889 (d) 1828

25. **How many types of formula of organic compound:**
(a) 4 (b) 5 (c) 3 (d) 2

26. **Formula which represents the actual number of atoms in one molecule of organic compound is:**
(a) structural formula (b) condensed formula
(c) Dot and cross formula (d) Molecular formula

27. **Condensed form of propane is:**
(a) H_3CCH_3 (b) $H_3C(CH_2)_2CH_3$ (c) $H_3CCH_2CH_3$ (d) CH_4

28. **A benzene ring is made of carbon atoms:**
(a) 4 (b) 2 (c) 6 (d) 3

29. $-\overset{|}{\underset{|}{C}}-\overset{|}{\underset{|}{C}}-\overset{|}{\underset{|}{C}}-\overset{|}{\underset{|}{C}}-$ **is a:**
(a) Straight Chain (b) Closed Chain (c) Branched Chain (d) Cyclic Chain

30. **C-C bond is stronger than**
(a) Si-Si (b) C-O (c) both (d) none

31. **Number of isomers increases with increase in number of ________ atoms:**
(a) hydrogen (b) nitrogen (c) carbon (d) oxygen

32. **Inorganic compounds are obtained from:**
(a) Minerals (b) plants (c) animals (d) none

33. **Coal tar is a mixture of more than ______ organic compounds:**
(a) 300 (b) 500 (c) 200 (d) 400

34. **Which one is used as reducing agent:**
(a) ammonical liquor (b) coal gas (c) coal tar (d) coke

35. **The basic unit of carbohydrates is:**
(a) glycogen (b) glucose (c) sucrose (d) pentose

36. **Organic compounds are soluble in:**
(a) organic solvent (b) polar solvent (c) inorganic solvent (d) non-polar solvent

37. **Geraniol consists of _________ functional group:**
(a) 2 (b) 4 (c) 3 (d) 5

38. **Organic compound consisting of "RCOOR" functional group is called:**
(a) ether linkage (b) ketonic linkage (c) ester linkage (d) carboxyl group

39. **Homologous series have same:**
(a) chemical properties (b) physical properties
(c) melting point (d) density

40. **Which one provide inert atmosphere in metallurgy process?**
(a) ammonical liqour (b) coke (c) coal gas (d) coal tar

41. **Which one is soft coal:**
(a) peat (b) bituminous (c) lignite (d) anthracite

42. **The main component of natural gas is:**
(a) methane (b) butane (c) ethane (d) propane

43. **Which one is main source of organic compound?**
(a) petroleum (b) natural gas (c) coal (d) amonical liquid

44. **Natural gas is used to make:**
(a) carbon black (b) fertilizers (c) both (d) none

45. **Esters are recognized by their:**
(a) fruity smell (b) fruity taste (c) fruity colour (d) none

46. **It represents group of atoms joined together to each carbon atom:**
(a) molecular formula (b) structural formula (c) condensed formula (d) Electronic formula

47. **Paraffin's means:**
(a) little affinity (b) low affinity (c) high affinity (d) none

48. **Which type of coal is used as house hold coal:**
(a) lignite (b) peat (c) anthracite (d) bituminous

ANSWER KEY

1	a	14	d	27	c	40	c
2	a	15	d	28	c	41	c
3	c	16	a	29	a	42	a
4	a	17	d	30	a	43	a
5	d	18	b	31	c	44	c
6	b	19	d	32	a	45	a
7	a	20	a	33	c	46	b
8	b	21	a	34	d	47	a
9	c	22	a	35	b	48	d
10	a	23	c	36	a		
11	b	24	d	37	a		
12	c	25	a	38	c		
13	c	26	d	39	a		

CHAPTER 12

HYDROCARBONS

MULTIPLE CHOICE QUESTIONS

1. **Which of the following is not a hydrocarbon?**
(a) Methane (CH_4) (b) Ethane (C_2H_6) (c) Water (H_2O) (d) Ethyne (C_2H_2)
2. **Carbon has valency**
(a) 3 (b) 4 (c) 5 (d) 6
3. **Which of the following property is not present in hydrocarbons?**
(a) High melting point (b) Non-polar property
(c) Solubility in non-polar solvent (d) Poor conductivity
4. **Hydrocarbons having high molecular mass are**
(a) Gases (b) Liquid (c) Solids (d) All of these
5. **Hydrocarbons having double bond are**
(a) Alkane (b) Alkene (c) Alkyne (d) Alkyl
6. **Methane forms natural gas about**
(a) 84% (b) 85% (c) 86% (d) 87%
7. **The density of alkane increases with the increase of**
(a) M.P (b) B.P (c) Molecular size (d) Bonds
8. **Which are the characteristics property of alkanes**
(a) Displacement reactions (b) Double displacement reaction
(c) Substitution reaction (d) Redox reaction
9. **Incomplete combustion of alkanes produce**
(a) Carbon dioxide (b) Oxygen (c) Chlorine gas (d) Carbon monoxide
10. **Alkynes being more reactive than**
(a) Alkanes (b) Alkenes (c) Both a & b (d) None of these
11. **Dehydrohalogenation of alkyl halides take place in the presence of**
(a) Alcoholic KOH (b) Aqueous NaCl (c) Alcoholic NaCl (d) Aqueous KOH
12. **A solution of bromine in water having colour**
(a) Dark brown (b) Purple (c) Red – brown (d) Voilet
13. **Traces of acetylene are present in coal gas about**
(a) 0.06% (b) 0.07% (c) 0.08% (d) 0.09%
14. **What is the formula of methane**
(a) CH_3 (b) CH_4 (c) CH_2 (d) C_2H_5
15. **Formula of nascent hydrogen is**
(a) H_2 (b) [H] (c) H_3 (d) All of these
16. **Which of the following is not an organic solvent**
(a) C_2H_5OH (b) $CHCl_3$ (c) CCl_4 (d) H_2O
17. **Methane is also called**
(a) Marsh gas (b) Inert gas (c) Natural gas (d) Both (a) and (c)
18. **Alkenes is also called**
(a) Paraffins (b) Olefins (c) Acetylenes (d) All of above
19. **Ethene reacts with H_2SO_4 at temperature of**
(a) 150°C (b) 16°C (c) 180°C (d) 453 K

20. Banaspati Ghee is also called
(a) Vegetable oil (b) Margarine (c) Cooking oil (d) Coconut oil

21. Ethylene oxide is used as
(a) Anti-freezer (b) Solvent
(c) Fumigant (d) Poisonous mustard gas

22. Banana when riped produces gas
(a) Ethene (b) Methane (c) Noble gas (d) Oxygen gas

23. Addition of hydrogen is called
(a) Reduction (b) Oxidation (c) Redox (d) All of these

24. Which of the following is not a example of open chain hydrocarbon
(a) CH_4 (b) C_3H_8 (c) C_2H_6 (d) C_6H_6

25. Number of bonds present in methane
(a) 2 (b) 3 (c) 4 (d) 5

26. Which of the following is not a function of chloroform
(a) Solvent in rubber (b) Dry cleaning (c) Solvent in waxes (d) Anaesthesia

27. Which of the following has higher energy
(a) Alkane (b) Alkene (c) Alkyne (d) All of these

28. .Which is used as Anti-freezer
(a) Di-ethyl ether (b) Ethyl alcohol (c) Ethylene oxide (d) Ethylene glycol

29. Alkanes are also called
(a) Paraffins (b) Olefins (c) Acetylenes (d) Acetaldehyde

30. Due to increase in molar mass which property increases
(a) B.P (b) M.P (c) Volatility (d) Both a & b

31. The compound having atleast one benzene ring are called
(a) Aromatics (b) Alkane (c) Alkene (d) Alkyne

32. What is the most necessary condition for the reaction of CH_4 with halogen?
(a) Catalyst (b) Pressure (c) Sunlight (d) High temperature

33. Glyoxal is oxidize into
(a) $KMnO_4$ (b) Glycol (c) Oxalic acid (d) Acetic acid

34. The example of rubbers are:
(a) Neoprene (b) Butadiene (c) Chloroprene (d) Furan

35. Which of the following is a synthetic fibre
(a) Nylon (b) Rayon (c) Polyesters (d) All of these

36. Detergents are the sodium salts of
(a) Sulphuric acid (b) Alkyl hydrogen sulphite
(c) Sodium carbonate (d) Cholestryl benezoate

37. Due to which property alkane are used a fuel
(a) Combustion (b) Halogenation (c) Oxidation (d) Reduction

38. Alcohol is soluble in water due to
(a) Hydrogen bonding (b) Lone pair of water
(c) Covalent bonding (d) All of above

39. Which of the following is not alcohol

(a) C_2H_5OH (b) C_3H_7OH (c) CH_3OH (d) $Ca(OH)_2$

40. paraffins means

(a) Highly reactive (b) Less reactive (c) Oil forming (d) None of these

41. Number of bonds in propene is

(a) 6 (b) 7 (c) 8 (d) 9

42. Which compound is used for welding process

(a) CH_4 (b) $KMnO_4$ (c) Acetylene (d) Ethylene

43. Amorphous forms of carbons are

(a) Coal (b) Charcoal (c) Carbon black (d) All of these

44. Alkenes are insoluble in

(a) Organic solvent (b) Alcohol (c) Water (H_2O) (d) Both b & c

45. Which of the following does not occur free in nature

(a) Ethylene (b) Acetylene (c) Propylene (d) Pentene

46. The formula of oxalic acid is

(a) $(COOH)_2$ (b) HCOOH (c) CH_3COOH (d) COOH

47. Alkyne forms

(a) Single bond (b) Double bond (c) Triple bond (d) Ionic bond

48. Di-methyl acetylene is also called

(a) Ethyne (b) Propyne (c) Butyne (d) Hexayne

49. Which one of the following is a substitution reaction

(a) Halogenation of alkane (b) Dehydration of alkane

(c) Hydrolysis of alkane (d) Hydrogenation .

50. Alkanes having carbon range are liquid

(a) C_4 to C_6 (b) C_5 to C_{10} (c) C_8 to C_{10} (d) Both a & b

ANSWER KEY

1	[illegible]	14	b	27	c	40	b
2	b	15	b	28	d	41	d
3	a	16	d	29	a	42	c
4	c	17	d	30	d	43	d
5	b	18	b	31	a	44	d
6	b	19	d	32	c	45	b
7	c	20	b	33	c	46	a
8	c	21	c	34	d	47	c
9	d	22	a	35	d	48	c
10	c	23	a	36	b	49	a
11	a	24	d	37	a	50	d
12	c	25	c	38	a		
13	a	26	b	39	d		

CHAPTER 13

BIOCHEMISTRY

MULTIPLE CHOICE QUESTIONS

1. **It is responsible for the transmission of genetic information:**
   (a) Nucleic acid (b) Acetic acid (c) carbonic acid (d) oxalic acid
2. **Carbohydrates are synthesized by plants through:**
   (a) photosynthesis (b) respiration (c) oxidation (d) breathing
3. **Carbohydrates are ________ molecules:**
   (a) macromolecules (b) micro molecules (c) mili molecule (d) mono molecule
4. **The glucose is further polymerized to form:**
   (a) starch & cellulose (b) starch & protein
   (c) lipids & carbohydrates (d) carbohydrates
5. **Monosaccharides are _________ sugars:**
   (a) simplest (b) complex (c) normal (d) none of these
6. **The important monosaccharides are:**
   (a) hexoses (b) trioses (c) dextrose (d) fructose
7. **Carbohydrates are**
   (a) crystalline solid (b) amorphous solid (c) semisolid (d) both a & b
8. **Monosaccharides consists of no. of carbon atoms:**
   (a) 3 to 9 (b) 3 to 6 (c) 4 to 8 (d) 6 to 8
9. **Carbohydrates are __________ in water:**
   (a) soluble (b) insoluble (c) moderately soluble (d) sparingly soluble
10. **Monosaccharides cannot be :**
    (a) hydrolyzed (b) evaporated (c) condensed (d) dehydrolyzed
11. **Maltose a disaccharides of two ___________ molecules:**
    (a) glucose (b) starch (c) fructose (d) sacrose
12. **Nature of polysaccharides is:**
    (a) non-reducing (b) reducing (c) oxidizing (d) non oxidizing
13. **Polysaccharides is ___________ solid:**
    (a) amorphous (b) crystalline (c) dual nature (d) soft solid
14. **Source of simple sugar is:**
    (a) honey (b) meat (c) fish (d) beaf
15. **It is pure cellular:**
    (a) cotton (b) silk (c) ebonite (d) nylon
16. **Starch is found in:**
    (a) cereal (b) honey (c) potato (d) pulse
17. **Carbohydrates is directly used by:**
    (a) muscles (b) bones (c) cartilages (d) heart
18. **Carbohydrates regulate the amount of ___________ in our body:**
    (a) sugar level (b) energy level (c) urine level (d) growth level

19. **Energy provided by carbohydrate is :**
(a) 17 K joule (b) 18 K joule (c) 34 K Joule (d) 436 K joule

20. **Dextrose solution contain _________ calories of energy:**
(a) 170 (b) 180 (c) 350 (d) 10

21. **Amino acids are linked with each other through:**
(a) peptide linkage (b) covalent linkage (c) hydrogen bond (d) ionic bond

22. **Percentage of protein in dry weight of cell is:**
(a) 50 % (b) 90 % (c) 60% (d) 40%

23. **Amino acids are ____________ of protein:**
(a) building block (b) non-building block (c) cement (d) bonds

24. **Protein are essential for the formation of:**
(a) protoplasm (b) cytoplasm (c) ectoplasm (d) endoplasm

25. **These are proteins:**
(a) hides (b) hooves (c) bones (d) caudals

26. **It is found in bones:**
(a) proteins (b) lipids (c) carbohydrates (d) organic acids

27. **Gelatin is used in:**
(a) bakery items (b) plastic (c) glass items (d) gems

28. **Lipids are made of:**
(a) fatly acids (b) ascorbic acid (c) fatty acid (d) amino acids

29. **Fats exists in:**
(a) semi solids (b) Amorphous solids (c) solid (d) liquid

30. **Oil exists in:**
(a) solids (b) semi-solid (c) amorphous solid (d) liquid

31. **Fats and oils are__________ food:**
(a) moderate energy (b) high energy (c) low energy (d) zero energy

32. **It is poor conductor:**
(a) fats (b) lipids (c) carbohydrates (d) proteins

33. **Butter and fats are obtained from:**
(a) milk (b) eggs (c) meat (d) fish

34. **Plants synthesize:**
(a) oil (b) ghee (c) custard (d) yogurt

35. **Marine source of oil is:**
(a) Solomon (b) tiger (c) snake (d) salamander

36. **Solomon and Wales oil is used as:**
(a) Bar. B. Q. (b) medicine (c) food (d) lemonoid

37. **Margarine is produced by adding ___________ to vegetable oil:**
(a) nitrogen (b) chlorine (c) hydrogen (d) carbon

38. **Esters of butanoic acids have ______________ smell:**
(a) pungent (b) rotten egg (c) foul (d) fruity

39. **Ethyl butanoate smells like:**
(a) apple (b) pineapple (c) cherry (d) guava

40. __________is essential component living cells:
(a) organic acid (b) oleic acid (c) nucleic acid (d) acetic acid

41. DNA structure was discovered in :
(a) 1953 (b) 1919 (c) 1983 (d) 1913

42. RNA stands for:
(a) mafenemic acid (b) steric acid (c) ribonucleic acid (d) nucleic acid

43. RNA role as:
(a) synthesizer (b) messenger (c) transporter (d) all above

44. vitamins were discovered in:
(a) 1912 (b) 1914 (c) 1932 (d) 1924

45. Accessories growth factors later named vitamins by:
(a) Drude (b) Loren (c) Funk (d) De'duve

46. Fat soluble vitamins are:
(a) A, F, D, C (b) B, C (c) A, B, C (d) K, D, E

47. Funk discovered vitamin:
(a) B_1(thiamin) (b) C (creatinin) (c) B,(sucrose) (d) urea

48. Deficiency of vitamin D cause:
(a) rabies (b) rickets (c) kidney stone (d) Arthritis

49. Disease of deficiency of vitamin A is:
(a) deafness (b) eye inflammation (c) baldness (d) rickets

50. Vitamin C is also called:
(a) nucleic acid (b) garlic acid (c) Ascorbic acid (d) maleic acid

ANSWER KEY

1	a	14	a	27	a	40	c
2	a	15	a	28	c	41	a
3	a	16	a	29	c	42	c
4	a	17	a	30	d	43	b
5	[illegible]	18	a	31	b	44	a
6	a	19	a	32	a	45	c
7	d	20	a	33	a	46	d
8	a	21	a	34	a	47	a
9	a	22	a	35	a	48	b
10	a	23	a	36	b	49	b
11	a	24	a	37	c	50	c
12	a	25	a	38	d		
13	a	26	a	39	b		

CHAPTER 14

ENVIRONMENTAL CHEMISTRY – I THE ATMOSPHERE

MULTIPLE CHOICE QUESTIONS

1. **Percentage of Nitrogen in the composition of atmosphere by volume is :**
(a) 78.09% (b) 20.94% (c) 0.03% (d) 0.93%
2. **______ % of sunlight is absorb by atmospheric gases:**
(a) 18 (b) 19 (c) 20 (d) 30
3. **Atmosphere consists of ______ spheres:**
(a) four (b) five (c) six (d) seven
4. **Temperature decreases from 17°C to -58°C regularly in the lowest layer extending upto ______ kilometers:**
(a) -12 (b) 13 (c) 14 (d) 15
5. **This layer extend upto 50 km:**
(a) Stratosphere (b) Mesosphere (c) Troposphere (d) Thermosphere
6. **Height above the earth surface of troposphere is :**
(a) 0-12km (b) 12-50km (c) 50-85km (d) 85-120km
7. **Height above the earth surface of stratosphere is:**
(a) 12-50km (b) 50-85km (c) 85-120km (d) 120-130km
8. **Height above the earth surface of mesosphere is:**
(a) 50-85km (b) 85-120km (c) 120-130km (d) 130-180km
9. **Height above the earth surface of thermosphere is:**
(a) 85-120km (b) 120-130km (c) 130-180km (d) 180-190km
10. **About 99% atmosphere mass lies within:**
(a) 30km (b) 35km (c) 15km (d)11km
11. **Depending upon temperature variation, atmosphere is divided into regions:**
(a) 1 (b) 2 (c) 3 (d) 4
12. **Just above the earth surface is:**
(a) Mesosphere (b) Stratosphere (c) Thermosphere (d) Trposphere
13. **A group of gasses that maintain the temperature of atmosphere is:**
(a) carbon dioxide and water vapours (b) nitrogen and carbon dioxide
(c) oxygen and water vapours (d) nitrogen and oxygen
14. **The earths atmosphere is getting hotter because of increasing concentration of:**
(a) CO (b) CO_2
(c) O_2 (d) SO_2
15. **Which one of the followings is not a green house effect:**
(a) Increasing atmosphere temperature (b) Increasing food chains
(c) Increasing flood risks (d) Increasing sea level
16. **Normally rain water weakly acidic because of dissolved:**
(a) SO_2 gas (b) CO_2 gas
(c) SO_3 gas (d) NO_2 gas
17. **Buildings are being damaged by acid rain because it attacks:**
(a) calcium sulphate (b) calcium nitrate
(c) calcium carbonate (d) calcium oxalate

18. **Ozone is beneficial for us as it absorbs:**
(a) infra radiations (b) ultra violet radiations
(c) chlorofluorocarbons (d) air pollutants
19. **Which one of the following is not a air pollutant:**
(a) Nitrogen dioxide (b) Nitrogen (c) Ozone (d) carbon dioxide
20. **Iron and steel structures are damaged by:**
(a) carbon dioxide (b) carbon monoxide (c) methane (d) sulphate
21. **Infrared radiations emitted by the earth are absorbed by:**
(a) CO_2 and H_2O (b) N_2 and O_2 (c) CO_2 and N_2 (d) O_2 and CO_2
22. **Cause of global warming is:**
(a) CO_2 (b) SO_2 (c) NO_2 (d) SO_3
23. **Which gas protects the surface of earth from ultra violet radiations:**
(a) CO_2 (b) CO (c) N_2 (d) O_3
24. **Percentage of Argon in atmosphere by volume is**
(a) 0.93 (b) 0.03 (c) 0.21 (d) 78.09
25. **Percentage of carbon dioxide in atmosphere by volume is**
(a) 0.03 (b) 0.21 (c) 0.93 (d) 78.09
26. **The temperature of stratosphere at lower layer is**
(a) 58°C (b)49°C (c)60°C (d) 72°C
27. **The harmful substances present in air are called**
(a) air pollutants (b)ozone (c) carbondioxide (d) water
28. **These pollutants are the wasted or exhaust products driven out because of combustion of** fossiel fuels and organic matter
(a) primary (b)secondary (c) tertiary (d) none
29. **These pollutants are produced by various reaction of primary pollutants**
(a) secondary (b) primary (c) tertiary (d) none
30. **How many natural systems of Earth is divided?**
(a) 4 (b) 3 (c) 2 (d) 1
31. **Wavelength of Sunlight radiation is:**
(a) long (b) small (c) both a and b (d)none
32. **Solar energy absorbed by Earth is converted into:**
(a) heat energy (b) light energy (c) both a and b (d) none
33. **How much energy is absorbed by atmospheric gases?**
(a) 6% (b) 23% (c) 18% (d)32%
34. **How much energy is absorbed by Earth?**
(a) 6% (b) 23% (c) 50% (d) 32%
35. **Lower layer of atmosphere is extended upto:**
(a) 12 km (b) 50 km (c) 85 km (d)110km
36. **Stratosphere extends upto:**
(a) 12 km (b) 50 km (c) 85 km (d)110 km
37. **The major constituents of troposphere are:**
(a) O_2 & N_2 (b) CO_2 & CO (c) SO_2 & SO_3 (d) NO_x
38. **In which region of atmosphere weathers occur?**
(a) Thermosphere (b) Mesosphere (c) Stratosphere (d) Troposphere
39. **Which is responsible for rise in temperature in stratosphere?**
(a) O_3 (b) CO_2 (c) CO (d) O_2

40. Which region is next to troposphere?
(a) Thermosphere (b) Mesosphere (c) Stratosphere (d) Atmosphere

41. Mid of stratosphere is composed of:
(a) O_3 (b) CO_2 (c) CO (d) H_2SO_4

42. Which is not a primary pollutant?
(a) SO_3 (b) CO_2 (c) CH_4 (d) O_3

43. Which is not a secondary pollutant?
(a) H_2SO_4 (b) HNO_3 (c) PAN (d) NH_3

44. When wood burns in limited supply of oxygen which gas is produced:
(a) CO_2 (b) CO (c) SO_2 (d) SO_3

45. pH of normal rain water is:
(a)6 (b) 7 (c) 8 (d) 9

46. pH of acid rain is:
(a) 4 (b) 5 (c) 6 (d) 7

47. Acid rain attacks on:
(a) $CaCO_3$ (b) K_2CO_3 (c) Na_2CO_3 (d) HNO_3

48. Decreased ozone layer will increase infectious disease like:
(a) fever (b) cholera (c) malaria (d) headache

49. Thermosphere lies beyond:
(a) troposphere (b) mesosphere (c) stratosphere (d) none

50. PAN is the abbreviation of
(a) Perhydroxy acetyle nitrate (b) Polyhydroxy acetyle nitrite
(c) Polyalkyl nitrate (d) Perhydroxyle acetyle nitrite

ANSWER KEY

1	a	8	a	15	b	22	a	29	a	36	b	43	d
2	a	9	a	16	b	23	d	30	a	37	a	44	b
3	a	10	a	17	c	24	a	31	b	38	d	45	a
4	a	11	d	18	b	25	a	32	a	39	a	46	a
5	a	12	d	19	b	26	a	33	c	40	c	47	a
6	a	13	d	20	a	27	a	34	c	41	a	48	c
7	a	14	b	21	a	28	a	35	a	42	d	49	b
												50	a

CHAPTER 15

ENVIRONMENTAL CHEMISTRY - II WATER

MULTIPLE CHOICE QUESTIONS

1. **Human body consists of __________ % water:**
(a) 70 (b) 60 (c) 40 (d) 30
2. **The ocean contains about ________% of world water:**
(a) 97 (b) 98 (c) 90 (d) 97.1
3. **water also present in the atmosphere in form of :**
(a) rain drops (b) Dew (c) Water vapors (d) rivers
4. **Only _________ % of the total water on the earth is potable :**
(a) 0.6 (b) 0.9 (c) 0.2 (d) 2
5. **Water is composed of:**
(a) Oxygen, hydrogen (b) Nitrogen, Hydrogen
(c) Nitrogen, Oxygen (d) Oxygen, Hydrogen, Carbon
6. **The freezing point of water is:**
(a) 0°C (b) 20°C (c) 100°C (d) 1°C
7. **The boiling point of water is ________ at sea level :**
(a) 100 °C (b) 0 °C (c) 50 °C (d) 101
8. **The maximum density of water is _______ at 4°C :**
(a) 3 g/cm^3 (b) 1 gm^3 (c) 1 g/cm^2 (d) 1 gcm^{-3}
9. **Water is excellent solvent for:**
(a) ionic compounds (b) Molecular compounds
(c) Both a and b (d) None
10. **Water has ____________surface tension:**
(a) high (b) low (c) moderate (d) comparable
11. **Water is a universal:**
(a) solvent (b) solute (c) Both a and b (d) donor
12. **Water molecule has _________ structure:**
(a) polar (b) non-polar (c) Both a and b (d) diatomic
13. **Soft water is that which produces _________ lather with soap:**
(a) good (b) bad (c) rough (d) fine
14. **$CaCO_2 + CO_2 + H_2O \longrightarrow$:**
(a) $Ca(HCO_3)_2$ (b) $Ca(HCO_3)$ (c) $Ca_2(HCO_3)_2$ (d) Ca_2CO_3
15. **$MgCO_3 + CO_2 + H_2O \longrightarrow$:**
(a) $Mg(HCO_3)_2$ (b) $Mg(HCO)_2$ (c) $Mg(HCO_3)$ (d) MgCl
16. **Gypsum is strongly __________ in water:**
(a) soluble (b) Insoluble (c) None of these (d) Both a and b
17. **HCO_3 makes the water:**
(a) hard (b) soft (c) clean (d) waxy

18. **Specific heat capacity of water is:**
(a) 4.2 $jkg^{-1}K^{-1}$ (b) 2.4 $jkg^{-1}K^{-1}$ (c) 3.4 $jkg^{-1}K^{-1}$ (d) 4.2 $Jg^{-1}K^{-1}$
19. **Water dissolves non-ionic compound by:**
(a) ion-ion forces (b) ion-dipole forces (c) hydrogen bonding (d) covalent bonds
20. **Temporary hardness is because of presences of bicarbonates of _______ and magnesium.**
(a) calcium (b) potassium (c) gypsum (d) copper
21. **The removal of __________ and Ca^{2+} ions which are responsible for the hardness is called water softening.**
(a) Mg^{2+} (b) k (c) SO^2 4 (d) Cu^{2+}
22. **Temporary hardness is because of:**
(a) $Ca(HCO_3)$ (b) $MgCO_3$ (c) $CaCO_3$ (d) NaCl
23. **Temporary hardness is removed by adding:**
(a) lime stone (b) slaked lime (c) lime water (d) Na_2CO_3
24. **Permanent hardness can only be removed by using:**
(a) lime stone (b) slaked lime (c)lime water (d) chemicals
25. **Hard water consumes large amount of _______ in washing purposes:**
(a) soap (b) power (c) slaked lime (d) detergents
26. **Drinking hard water causes disorders:**
(a) blood (b) Heart (c) stomach (d) kidney
27. **It is sodium salt of a long carboxylic acid:**
(a) acid (b) soap (c) lime (d) sodium chloride
28. **Hard water contains salts of**
(a) Magnesium, calcium (b) Magnesium, potassium
(c) Calcium, potassium (d) Ca, Cu
29. **Water pollution is contamination of water:**
(a) Bodies (b) Molecules (c) Compounds (d) prices
30. **Vibrios cholera may be found in water contaminated by:**
(a) Human feaces (b) Animal feaces (c) Both a and b (d) human urine
31. **Fluorosis is a disease caused by the consumption of excess :**
(a) Chlorine (b) Bromine (c) Fluoride (d) Astatine
32. **Which of the following disease cause liver inflammation?**
(a) Typhoid (b) Cholera (c) Hepatitis (d) Jaundice
33. **Hepatitis _____and______ can be transmitted by contaminated water:**
(a) B, C (b) A, E (c) A, D (d) B, A
34. **Hookworm infects the:**
(a) Small intestine (b) Large intestine (c) Stomach (d) Liver
35. **Hookworm infects about __________ billion people worldwide per annum:**
(a) 1 (b) 2 (c) 4 (d) 5
36. **Water pollution causes rapid growth of:**
(a) Bacteria (b) Algae (c) Chemicals (d) Pollutants
37. **Water pollution is unfit for __________ purposes:**
(a) Cleaning (b) Washing (c) Both a and b (d) drinking

38. In some parts of the world, the water supply contains small amount of _____ compounds:
(a) Chlorine (b) Bromine (c) Fluorine (d) iodine
39. Lack of proper sanitation facilities is the main cause of rapidly spreading _____ diseases:
(a) Water borne (b) Water pollution (c) hepatitis (d) heart
40. Diarrhea may be caused by viruses:
(a) Bacteria (b) Parasites (c) Both a and b (d) fungal infections
41. Dysentery is a disease of:
(a) Intestine (b) Stomach (c) Heart (d) liver
42. Cholera is an acute infection caused by_____________ bacteria:
(a) Cholerae (b) Vibrious cholerae (c) Both a and b (d) None of these
43. A large number of soap is wasted in ____________ formation:
(a) Scum (b) Detergents (c) Soda (d) None of these
44. Water pollution due to agriculture waste is because of use of the:
(a) Fertilizers (b) Pesticide (c) Both a and b (d) insecticide
45. Fertilizers are used to make up deficiency of:
(a) Nitrogen (b) Phosphorus (c) Both a and b (d) calcium
46. Aquatic animals feel suffocation and ultimately die due to insufficient supply of:
(a) Oxygen (b) Hydrogen (c) Carbon dioxide (d) None of these
47. Water borne diseases:
(a) Dysentery (b) Cholera (c) Both a and b (d) pneumonia
48. Heavy metals like Cadmium, Lead and Mercury are toric and health hazards for:
(a) Humans (b) Animals (c) Both a and b (d) plants
49. Use of detergents is increasing day by day for cleaning purposes in:
(a) Houses (b) Industries (c) Both a and b (d) classes
50. Detergents can work even in ________ solutions:
(a) Acidic (b) Basic (c) Both a and b (d) Alkaline
51. The ________ salt is present in detergents cause rapid growth of algae in water:
(a) nitrate (b) Phosphate (c) Magnesium (d) Both a and b
52. Jaundice is caused by an excess of _________ in blood:
(a) Bile pigments (b) RBC's (c) WBC's (d) thrombocytes
53. Patient feels weakness and fatigue in:
(a) Jaundice (b) Hepatitis (c) Cryptosporidium (d) Cholera
54. Typhoid is a dangerous ___________ disease:
(a) Intestinal (b) Bacteria (c) Infections (d) fungal
55. Chlorine kills:
(a) Bacteria (b) Micro-organisms (c) Both a and b (d)germs
56. Swimming pools are cleaned by:
(a) Chlorination (b) Fluorination (c) Bromination (d) Both b and c
57. Hardness is of __________ types:
(a) Four (b) Two (c) Three (d) Five

58. **Used water is called:**
(a) Waste water (b) Sewage (c) Both a and b (d) none of these

59. **Good quality Water is colorless and:**
(a) odorless (b) Tasteless (c) Both a and b (d) softly

60. **Pure water has ____________ conductivity:**
(a) High (b) Very low (c) Both a and b (d) None of these

61. **A disease that causes bone and tooth damage:**
(a) Jaundice (b) Fluorosis (c) Hepatitis (d) Asthma

62. **Sea water is unfit for __________ purposes:**
(a) Drinking (b) Agriculture (c) Both a and b (d) Washing

63. **Water is a universal solvent because of its:**
(a) Polarity (b) Hydrogen bonding ability
(c) Both a and b (d) Covalent bonding

64. **Which one of the following properties of water is responsible for rising of water in plants?**
(a) Surface tension (b) Capillary action (c) Heat capacity (d) Specific heat

65. **Permanent hardness because of Mg^{2+} and Ca^{2+}:**
(a) SO_4^{2-} (b) Cl^- (c) Both a and b (d) Phosphates

ANSWER KEY

1	a	14	a	27	b	40	c	53	a
2	a	15	a	28	a	41	a	54	b
3	c	16	a	29	a	42	b	55	c
4	c	17	a	30	a	43	a	56	a
5	a	18	d	31	c	44	c	57	b
6	a	19	c	32	c	45	c	58	c
7	a	20	a	33	b	46	a	59	c
8	d	21	a	34	a	47	c	60	b
9	c	22	a	35	a	48	a	61	b
10	a	23	b	36	b	49	c	62	c
11	a	24	d	37	c	50	a	63	c
12	a	25	a	38	c	51	d	64	b
13	a	26	c	39	a	52	a	65	c

CHAPTER 16

CHEMICAL INDUSTRY

MULTIPLE CHOICE QUESTIONS

1. **Science of extracting metals from ores is called:**
(a) Gangue (b) Metallurgy (c) Bassemrization (d) Calcinations

2. **Fertilizers urea is used to enhance the:**
(a) enhance the variety of items (b) a & c
(c) productivity of crops (d) None of these

3. **These are used as fuel, solvent and lubricants:**
(a) petrochemicals (b) Fertilizers (c) petroleum products (d) Ores

4. **Big industries in India at the time of patrician:**
(a) 989 (b) 924 (c) 926 (d) 921

5. **Sodium carbonate is ________ producing in Jhelum:**
(a) more (b) Less (c) enough (d) None of these

6. **ICI unit was established in:**
(a) 1946 (b) 1944 (c) 1942 (d) 1947

7. **Sindh alkalies limited were established in:**
(a) 1966 (b) 1956 (c) 1969 (d) 1968

8. **Pakistan is self-sufficient for the demand of:**
(a) Sodium carbonate (b) Sodium bicarbonate
(c) Sodium chloride (d) Sodium hydroxide

9. **In Solvay's process, $CaCl_2$ solution is a material:**
(a) Need (b) Waste (c) product (d) Reactant

10. **CO_2 and _____ are recovered & reused in Solvay's process:**
(a) ammonia (b) Aluminum (c) sodium (d) NACL

11. **Urea is a ______ fertilizer:**
(a) Carbonic (b) Nitrogenous (c) Both a & c (d) None of these

12. **Percentage of nitrogen in urea:**
(a) 46.2 % (b) 48% (c) 41% (d) 46.6%

13. **Urea is a _______ compound:**
(a) White-crystalline (b) Transparent (c) blue crystalline (d) none crystalline

14. **Urea is a highly soluble in:**
(a) Carbon dioxide (b) Water (c) crude oil (d) petroleum

15. **Urea is used for manufacturing of:**
(a) crude oil (b) slaked lime (c) important chemicals (d) None of these

16. **Urea is about __________ used as a fertilizer:**
(a) 90% (b) 93% (c) 90.4% (d) 94%

17. **NH_3 and CO_2 are the raw materials of:+**
(a) sodium chloride (b) Crude oil (c) fuel (d) Urea

18. **Ammonia is prepared by:**
(a) Solvay's process (b) Electromagnetic separation
(c) Haber's process (d) Electrolysis
19. **Volume of nitrogen in Haber's process obtain from:**
(a) Water (b) air (c) Carbon dioxide (d) None of these
20. **Nitrogen react with hydrogen to form ammonia at:**
(a) 250 atm (b) 235 atm (c) 300 atm (d) 200 atm
21. **Temperature required for the production of ammonia is:**
(a) 400°C (b) 450 °C (c) 425 °C (d) 500 °C
22. **For the formation of ammonia carbonate CO_2 is passed through:**
(a) Brine solution (b) Liquid carbon (c) liquid ammonia (d) both a & b
23. **Urea is used to make:**
(a) Fire extinguisher (b) Explosives (c)Auto mobiles (d) None of these
24. **percentage of Nitrogen in air:**
(a) 72% (b) 75% (c) 78% (d) 81%
25. **There are _______ manufacturing units in Pakistan:**
(a) Six (b) Nine (c) Twelve (d) Seven
26. **The biggest Fertilizer manufacturer in Pakistan is:**
(a) Engro chemicals (b) David Hercules chemicals
(c) Bin Qasim (d) Fauji fertilizers
27. **Fauji fertilizers contains ________% of market shares:**
(a) 55 (b) 61 (c) 56 (d) 59
28. **Natural fertilizers contains natural Bio-degradable from:**
(a) Nitrogen (b) Phosphorous (c) Live stock (d) Potassium
29. **Chemical fertilizers release _______ very fastly:**
(a) Minerals (b) gasses (c) Nutrients (d) Both a&b
30. **Natural fertilizers improve the structure of:**
(a) Soil (b) Ores (c) Minerals (d) Metals
31. **Natural fertilizers are decomposed by:**
(a) Fungi (b) Algae (c) Bacteria (d) Ferns
32. **Natural fertilizers practically do not contain:**
(a) Nitrogenic Chemical (b) Ionic Chemical
(c) Non-ionic Chemical (d) Toxic chemical
33. **In fractional distillation crude oil is heated up to:**
(a) 400°C (b) 500 °C (c) 450 °C (d) 425°C
34. **Crude oil is separated into __________ hydrocarbons:**
(a) 7 (b) 6 (c) 8 (d) 5
35. **Boiling point of gasoline or petrol is**
(a) 50 to 100 °C (b) 60 to 140 °C (c) 40 to 90 °C (d) 80 to 170 °C
36. **Fuel oil boils at:**
(a)350 to 400 °C (b) 60 to 140 °C (c) 40 to 90 °C (d) 80 to 170 °C
37. **Ammonical tower contains:**
(a) steam (b) Quick lime (c) Slaked lime (d) Brine
38. **Sodium hydrogen carbonate decomposes to liberate __________ gas:**
(a) H_2 (b) SO_2 (c) CO_2 (d) N_2

39. **Solvay's process is __________:**
(a) Expensive process (b) Hydrogen free (c) Pollution free (d) None of these
40. **Solvay's process is a_______**
(a) Carbonating (b) Expensive process (c) Cheap process (d) None of these
41. **"ICI" stands for_______:**
(a) International chemical industries (b) Imperial chemical industry
(c) International Compound Industry (d) None of these
42. **For Electolytic refining of copper______ solution is used**
(a) copper oxide (b) Copper sulphate (c) copper dilute (d) Copper sulphide
43. **Cheap raw material for manufacturing of sodium carbonate is**
(a) sulphur (b) Carbon (c) aluminum (d)limestone
44. **Sodium bi carbonate heated to get**
(a) lime kiln (b) Calcium hydroxide (c) sodium carbonate (d) Ammonia
45. **Quick lime reacts with water to form**
(a) lime water (b) Limestone (c) salt water (d) Slaked lime
46. **Ferrous sulphide is oxidized to form**
(a) ferric oxide (b) ferric hydroxide (c) ferrous oxide (d) Ferric sulphate
47. **It is used for bessemerizing of copper**
(a) magnetic separation (b) gravity separation
(c) blast fumuse (d) bersemmer convertor
48. **Blister copper contains**
(a) 95% pure copper (b) 99% pure copper (c) 98% pure copper (d) 92% pûre copper
49. **Cuprous sulphate oxidizes to form**
(a) cuprous sulphate (b) Cupric oxide (c) Cuprous oxides (d) Cupric sulphate
50. **Cuprous sulphide and ferrous sulphide form**
(a) CuO.FeS (b) $CuSO_4$.FeS (c) $CuFeS_2$ (d) CuFeS
51. **Molten mixture of Cu_2S.Fes is called**
(a) ore (b) matte (c) soil (d) petroleum
52. **First process involved in metallurgy is**
(a) extraction of metals (b) smelling
(c) froth forestation (d) concentration of ore
53. **Process based on wetting characteristic of ore is called**
(a) Electrolytic separation (b) smelling
(c) froth flotation (d) Gravity separation
54. **Sepearation of magnetic ore from non magnetic is called**
(a) gravity separation (b) electromagnetic
(c) concentrate (d) matte
55. **Brown hair contains:**
(a) titanium (b) molybdenum
(c) iron or copper compound (d) alkali metal
56. **Blonde hair contains:**
(a) Titanium (b) Molybdenum
(c) iron or copper compound (d) Alkali metal
57. **Red hair contains:**
(a) Titanium (b) Molybdenum
(c) iron or copper compound (d) Alkali metal
58. **Process of extraction of metal in pure state is:**
(a) Gangue (b) Gravity separation
(c)Metallurgy (d) Electromagnetic Separation

59. **Process of removal of Gangue from ore is called:**
(a) Concentrate (b) Metallurgy (c) Concentration (d) ores

60. **How many industries came in share of Pakistan:**
(a) 36 (b) 33 (c) 34 (d) 30

61. **Minerals are those solid natural metal which contains:**
(a) Compound of Non-metal (b) Compound of metal
(c) Both a & b (d) None of thaes

62. **Example of Ores is:**
(a) $NaHCO_3$ (b) Cu_2S (c) NaCl (d) $CaCO_3$

63. **Cause of color of hair is presence of**
(a) Iron compound (b) titanium (c) transition element (d) molybdenum

64. **Impurities associated with metal minerals are:**
(a) Gangue (b) metallurgy (c) ores (d) minerals

65. **Boiling range of fuel oil is :**
(a) 250-350°C (b) 350-400 °C (c) 400-500 °C (d) 200-250 °C

66. **Kerosine oil is used as:**
(a) laboratory solvent (b) To form NACL (c) jet fuel (d) In ships

67. **Composition of petroleum ether is :**
(a) C to C_{10} (b) C_5 to C_7 (c) C_{13} to C_{15} (d) C to C_4

68. **They work in metallurgical industry:**
(a) Inorganic chemists (b) organic chemists
(c) Both a and b (d) None of these

69. **$NaHCO_3$ an heating produces :**
(a) $NaCO_2$ (b) Na_2CO_3 (c) Na_2CO_2 (d) $NaCO_3$

ANSWER KEY

1	b	14	b	27	d	40	c	53	c	66	c
2	c	15	c	28	c	41	a	54	a	67	d
3	c	16	a	29	c	42	b	55	c	68	a
4	d	17	d	30	a	43	d	56	a	69	b
5	c	18	c	31	c	44	c	57	b		
6	b	19	b	32	d	45	d	58	[illegible]		
7	a	20	d	33	a	46	c	59	c		
8	a	21	b	34	b	47	d	60	c		
9	b	22	c	35	d	48	c	61	b		
10	a	23	b	36	a	49	c	62	c		
11	b	24	c	37	d	50	c	63	c		
12	d	25	a	38	c	51	b	64	a		
13	a	26	d	39	c	52	d	65	b		